

REMARKS

Applicants appreciate the withdrawal of the prior final rejections in view of Applicants' Amendment and Request For Reconsideration After Final that was filed on October 7, 2004, and for the new citation of U.S. Patent No. 5,257,286 to Ray. Applicants also appreciate the allowance of Claim 6. Initially, Applicants note that the statement of the Disposition of Claims on Page 1 of the Office Action indicates that Claims 8 and 12 stand rejected. However, the Office Action has provided no basis for rejecting either Claim 8 or Claim 12. Applicants respectfully submit that Claims 1-5 and 7-12 are patentable over the cited references in view of the above amendments and for at least the reasons that will now be explained.

Independent Claims 1 and 7 are Patentable Over Ray:

Amended Claim 1 recites:

1. (Currently Amended) A circuit for adaptively amplifying an input signal, the circuit comprising:
 - an adaptive filter connected to receive the input signal and to amplify a predetermined frequency range of the input signal by an amount based on an amplification control signal input to the adaptive filter to generate an amplified input signal;
 - a comparator connected to receive the amplified input signal from the adaptive filter and a predetermined threshold signal, the comparator outputting a comparison signal that compares the amplified input signal to the predetermined threshold signal; and
 - a filter adaptation circuit connected to receive the comparison signal and to generate the amplification control signal based on the comparison signal during a normal mode of operation, and to calibrate the generation of the amplification control signal based on the comparison signal and a known training pattern during a training mode of operation. (emphasis added).

Claim 1 has been amended to emphasize that the filter adaptation circuit has two modes of operation. During a normal mode of operation, the filter adaptation circuit generates an amplification control signal based on a comparison signal. In contrast,

during a training mode of operation the filter adaptation circuit generates the amplification control signal based on a known training pattern and the comparison signal. These two different operational modes of the filter adaptation circuit are further described in the Specification at, for example, pages 7-9 and are shown in FIGs. 4 and 5. The Specification explains that the training "mode of operation uses a known waveform, i.e., training signal, to calibrate the adaptive filter before pertinent data is sent from host 120 to hardware devices 140a... 140m, thereby minimizing ISI effects and allowing for the reliable detection of transmitted information." (Specification, Page 8, lines 1-4).

Claim 1 and analogous independent method Claim 7 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,257,286 to Ray. As will be described in detail below, Ray does not appear to disclose at least the above-underlined recitations of Claim 1.

Ray discloses a "receive equalizer 8 [that] comprises a continuous time, frequency selective, equalization filter 10". (Ray, Col. 3, lines 2-3, emphasis added). As expressly stated by Ray, the disclosed equalizer 8 is a "continuous" filter. Ray does not disclose a filter that selectively operates in a training mode of operation and in a normal mode of operation.

The Office Action refers to the equalized feedback control means 14 and, more particularly, the sequencer 96 and random walk filter 94 of Ray as disclosing the filter adaptation circuit of Claim 1. However, with reference to FIG. 2 of the feedback control means 14, Ray explains that the "random walk filter 94 performs an averaging function to prevent dithering between steps when equalization filter 10 has converted to point [sic] where one step by feedback control means 14 would be too little gain and a subsequent step would be too much gain." (Ray, Col. 3, lines 62-69). The "sequencer 96 sequences random walk filter 94, fine gain counter 98 and course gain counter 99 by generating a synchronized system clock derived from the 1.544 Mhz reference 23 clock." (Ray, Col. 3, line 69 - Col. 4, line 4). Ray further explains that the "output of random walk filter 94

in conjunction with sequencer 96, causes fine gain counter 98 and coarse gain counter 99 to increment or decrement depending upon whether the fourth stage 22 output is greater than or less than the predetermined reference." (Ray, Col. 4, lines 4-9).

Accordingly, as pointed out above from Ray, the sequencer 96 uses the reference 23 clock to sequence the random walk filter 94 and counters 98, 99. The sequencer 96 does not output a "known pattern". Ray provides no description of the output of the sequencer 96 other than that it sequences in response to the reference 23 clock. Presumable, the sequencer 96 continuously varies in time in response to the reference 23 clock. This assumption is supported by the Ray's description of the filter 94 as a "random walk filter 94". The stated randomness of the walk filter 94 is presumably caused by the apparent randomness of the output of the sequencer 96.

Moreover, the sequencer 96 does not output a "training pattern". As explained above, Ray is devoid of any description of the equalizer 8, or of any of the components therein, selectively operating in a normal mode and a training mode. Moreover, Ray provides no description of how such selectively operation between a normal mode and a training mode could be performed. Instead, Ray teaches that the output of the sequencer 96 is always output to the random walk filter 94 and counters 98,99 to cause the random walk filter 94 to continuously perform the averaging function to prevent dithering between steps of the feedback control.

Accordingly, Applicants submit that Ray does not disclose a filter that selectively operates in a training mode of operation and a normal mode of operation, and it does not disclose that in a training mode of operation that a filter adaptation circuit generates an amplification control signal based on a known training pattern and a comparison signal. Consequently, Applicants submit that Claim 1 is patentable over Ray and request rejection of that claim.

Claim 7 is a method analog of Claim 1 and is patentable over Ray for substantially the same reasons as provided above for Claim 1.

Although the Office Action has provided no basis for the apparent rejection of independent Claim 8, Applicants submit that amended Claim 8 is patentable over Ray for substantially the same reasons as provided above for Claim 1.

Dependent claims 2-5, and 9-12 are patentable at least based on the patentability of the independent claims from which they depend as discussed above. Additionally, as Applicants identified above, the Office Action has provided no basis for rejecting dependent Claim 12. Moreover, these claims are submitted to provide further basis for patentability.

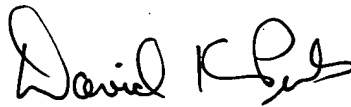
For example, amended Claim 2 recites that the input signal is a small computer system interface (SCSI) signal and the adaptive filter reduces inter-symbol interference (ISI) in the SCSI signal based on the known training pattern. In rejecting Claim 2, the Office Action combines Ray with U.S. Patent No. 6,643,324, which it contends discloses an equalization receiver that equalizes a received SCSI signal and removes ISI. However, neither Ray nor Gasparik teach or suggest removing ISI from a SCSI signal based on a known training pattern during a training mode of operation. Accordingly, Applicants submit that Claim 2 is patentable over Ray in view of Gasparik.

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Serial No.: 09/650,964
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CONCLUSION

In light of the above amendments and remarks, Applicants respectfully submit that the above-entitled application is now in condition for allowance. Favorable reconsideration of this application, as amended, is respectfully requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (919) 854-1400.

Respectfully submitted,

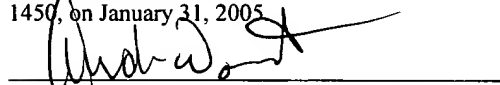


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